

Memorandum

Date:	18 November 2013
To:	Jill McKenzie, Dave Barskey, Gloria Depaolis, NJDEP
Copies to:	Dawn Horst, Ingersoll Rand
From:	Mike Lambert, P.G., Scott Drew, L.S.R.P., Geosyntec Consultants
Subject:	Former Ingersoll Rand Facility, Phillipsburg, NJ – Inverse Ponds Overburden Groundwater Investigation

On behalf of Ingersoll Rand, Geosyntec has developed this memorandum to document the activities and results of the overburden groundwater investigation completed at AOC-31 (Inverse Ponds) from 10 September to 11 September 2013. The activities were performed as part of the investigation plan documented in the Supplemental Remedial Investigation Workplan (SRIW) dated 5 September 2013 and subsequent NJDEP correspondence. The objectives of the overburden groundwater investigation included the following:

- Identify whether groundwater is present in the overburden adjacent to the inverse ponds;
- Measure the quality of any overburden groundwater that is present; and
- Evaluate whether overburden groundwater contains any constituents that are also found in the sediments/soils associated with the inverse ponds.

To meet the above objectives, a total of six borings (TW-1 to TW-6) were advanced on 10 September 2013 by direct-push technology (DPT) drilling adjacent to the former upper and lower inverse ponds (Figure 1). Summit Drilling of Bridgewater, New Jersey, a licensed New Jersey driller, performed the drilling. Each boring was advanced to refusal, which varied from 10.5 to 23 feet below ground surface (bgs). The refusal depths at TW-5 and TW-6 were 10.5 and 12.5 feet bgs, respectively. Due to the relatively shallow refusal depths at these two boring locations, a second, step-out boring was advanced at both TW-5 and TW-6, within 10 feet of the initial location, to confirm the refusal depth.

Refusal at each boring location is attributed to the presence of bedrock based on observation of rock fragments in the lowermost cores and general agreement between the encountered refusal depths and anticipated bedrock depth of 15 feet bgs. In addition, the reported depth to bedrock values for MW05, MW25 and MW26, which are located near the inverse ponds, are 20, 18 and 11 feet below ground surface, respectively. These depth to bedrock values are similar to the range in refusal depths encountered during the September 2013 overburden groundwater investigation.

At each boring location, soils were logged continuously for color, lithologic characteristics, moisture content and field-screened with a photoionization detector (PID) for volatile organic compounds

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(VOCs). Elevated PID readings were observed at TW-1 to TW-4, prompting collection of soil samples at these locations. Each soil sample was collected from the six-inch interval containing the maximum PID reading at each boring location per the SRIW and analyzed for Target Compound List Volatile Organic Compounds (TCL VOCs) plus a library search. At TW-3, a second soil sample was obtained from a shallower depth interval (8.0 to 8.5 ft.) than the depth interval with the maximum PID detection (10.25 to 10.75 ft.). The shallow sample at TW-3 was collected due to an elevated PID response with similar magnitude to the deeper sample. Soil samples and quality assurance/quality control (QAQC) samples were placed in a cooler on ice under proper chain-of-custody procedures and submitted to Accutest Laboratories of Dayton, New Jersey for analysis.

Additional information regarding the installation of each soil boring is provided in Table 1, and the laboratory analytical results are provided in Table 2. The laboratory report is provided as Attachment A. The analytical results from the soil sampling indicate the following:

- Volatile tentatively-identified compounds (TICs) were detected in each soil sample at total estimated concentrations ranging from 32.03 to 237 mg/kg;
- Isopropyl benzene was detected in four soil samples (no Soil Remediation Standard); and
- Carbon disulfide was detected in one soil sample at an estimated concentration of 0.0299 mg/kg (below the default Impact to Groundwater Soil Screening Level and Non-Residential Direct Contact Soil Remediation Standard).

At TW-2 and TW-4, minor amounts of suspected foundry sands were observed within the 0 to 1 ft. bgs depth intervals. A photograph of the suspected foundry sands observed within the 0 to 1 ft. depth interval at TW-2 is provided in Attachment B.

One-inch diameter temporary groundwater monitoring points were installed in borings TW-1 to TW-6 on 10 September 2013 to evaluate the potential presence of groundwater in the overburden. The one-inch diameter temporary groundwater monitoring points were constructed with Schedule 40 PVC screen and riser with stick-up surface completions. The measured depth to bottom (DTB) values and screen lengths for the temporary monitoring points were the following:

- TW-1: DTB approximately 12.95 ft. bgs, 10 ft. screen length
- TW-2: DTB approximately 23.14 ft. bgs, 20 ft. screen length
- TW-3: DTB approximately 11.91 ft. bgs, 10 ft. screen length
- TW-4: DTB approximately 13.43 ft. bgs, 12 ft. screen length
- TW-5: DTB approximately 9.65 ft. bgs, 9.5 ft. screen length
- TW-6: DTB approximately 11.83 ft. bgs, 10 ft. screen length

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At each one-inch temporary groundwater monitoring point, plastic sheeting was secured to the stick-up riser as a temporary cap to prevent potential surface runoff from entering the borehole annular space (see photograph in Attachment B).

On 11 September 2013, each one-inch temporary monitoring point was gauged using a depth to water meter. Prior to gauging, proximal monitoring wells MW05 and MW26 were gauged and depth to water values at MW05 and MW26 were 73.88 and 77.60 ft. below top of casing, respectively. No measurable groundwater was encountered in the six temporary monitoring points. Based on these findings, TW-1 to TW-6 were decommissioned by Summit Drilling via removal of the PVC screen and riser followed by tremie grouting of the borehole with a 95/5 percent mixture of Portland cement and bentonite.

In summary, overburden groundwater was not encountered in any of the six borings advanced to refusal around the Inverse Ponds, consistent with other areas of the Site and the overall Site Conceptual Model. This limits the ability for the contaminated sediments/soils associated with the Inverse Ponds to migrate to the primary groundwater aquifer located in bedrock. Samples collected from soil cores with elevated field PID readings did not reveal the presence of any regulated compounds above applicable standards.

* * * * *

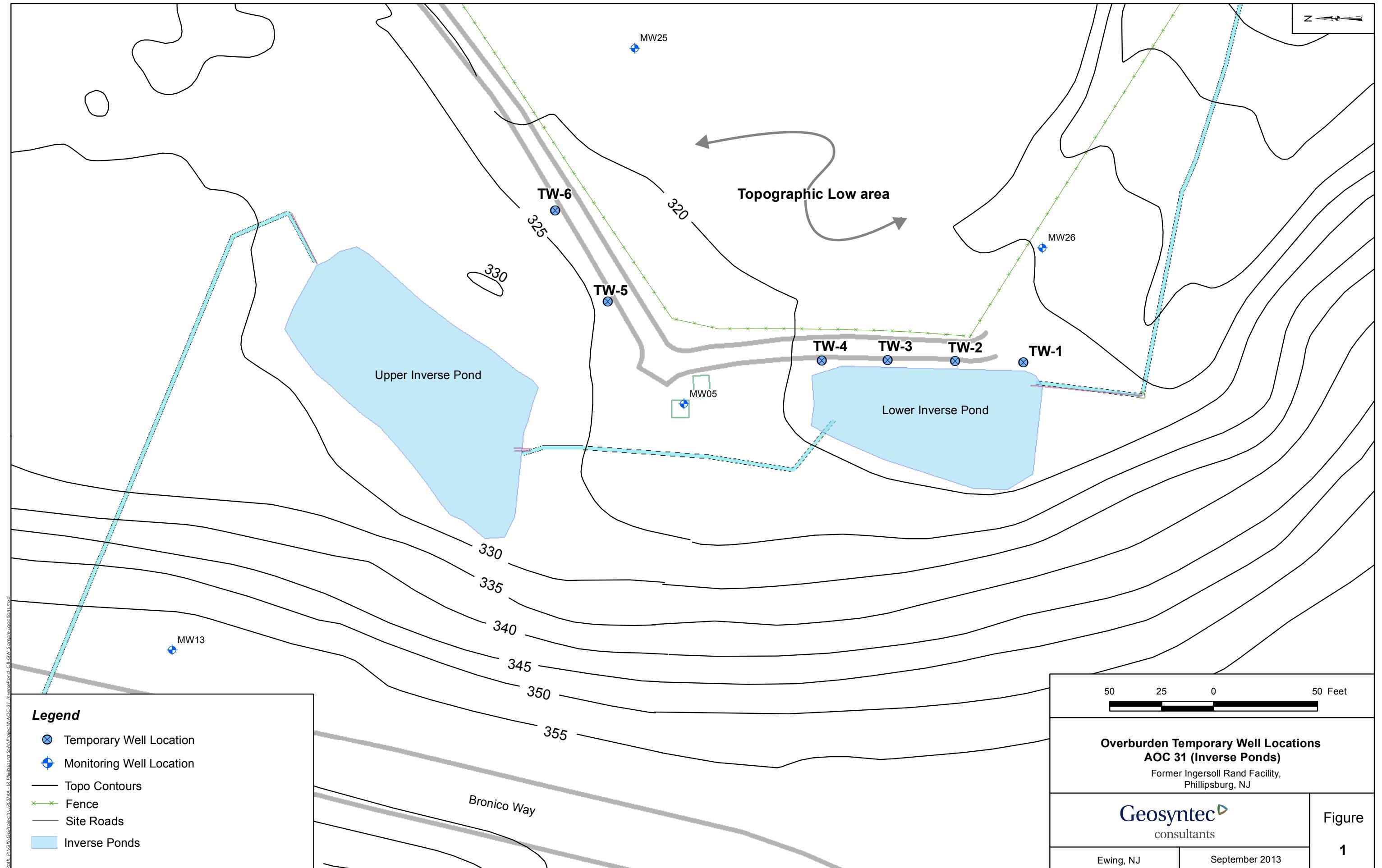


Table 1
 Sample Summary
 AOC-31 (Inverse Ponds)
 Former Ingersoll Rand Facility
 Phillipsburg, NJ

Boring Location	Boring Date	Depth (ft bgs)	Description	Field PID (ppm)	Sample Matrix	Sample Type	Field Sample ID	Analytical Method
TW1	9/10/2013	7.5-8	Brown to black SILT and CLAY, little fine gravel, moderately dense, moist.	89.7	Soil	Original	TW1_7.5-8.0_091013	VOCs by SW846 8260B
						Field duplicate	DUP-01_091013	% Solids by SM2540 G-97
TW2	9/10/2013	15-15.5	Orange-brown SILT with trace fine sand, clay and fine gravel, dense, moist.	1710	Soil	Original	TW2_15-15.5_091013	VOCs by SW846 8260B
								% Solids by SM2540 G-97
TW3	9/10/2013	8-8.5	Grayish-brown to brown SILT, little clay and fine gravel, moderately dense, trace black staining, moist.	580	Soil	Original	TW3_8-8.5_091013	VOCs by SW846 8260B
								% Solids by SM2540 G-97
TW3	9/10/2013	10.25-10.75	Brown SILT with trace fine sand, little fine gravel, moderately dense, moist.	1175	Soil	Original	TW3_10.25-10.75_091013	VOCs by SW846 8260B
								% Solids by SM2540 G-97
TW4	9/10/2013	7.5-8	Orange-brown SILT with little clay, trace fine gravel, dense, slightly moist.	806	Soil	Original	TW4_7.5-8_091013	VOCs by SW846 8260B
								% Solids by SM2540 G-97

Table 2
Soil Analytical Results - VOCs
AOC-31 (Inverse Ponds)
Former Ingersoll Rand Facility
Phillipsburg, New Jersey

Station Name	Sample Date	Field Sample ID	Sample Depth	NJDEP Default Impact to Groundwater Soil Screening Levels	TW1		TW2		TW3		TW4
					9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013
					TW1.7.5-8.0.091013	DUP-01.091013	TW2.15-15.5.091013	TW3.8-8.5.091013	TW3.10.25-10.75.091013	TW4.7.5-8.091013	
VOCs (mg/kg)											
1,1,1-Trichloroethane	71-55-6	4200	0.2	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
1,1,2,2-Tetrachloroethane	79-34-5	3	0.005	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
1,1,2-Trichloroethane	79-00-5	6	0.01	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
1,1,2-Trichlorotrifluoroethane (Freon 113)	76-13-1	NS	NS	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
1,1-Dichloroethane	75-34-3	24	0.2	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
1,1-Dichloroethene	75-35-4	150	0.005	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
1,2,3-Trichlorobenzene	87-61-6	NS	NS	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
1,2,4-Trichlorobenzene	120-82-1	820	0.4	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
1,2-Dibromo-3-chloropropane	96-12-8	0.2	0.005	0.57 U	0.64 U	0.80 U	0.55 U	0.68 U	0.61 U		
1,2-Dibromoethane	106-93-4	0.04	0.005	0.057 U	0.064 U	0.080 U	0.055 U	0.068 U	0.061 U		
1,2-Dichlorobenzene	95-50-1	59000	11	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
1,2-Dichloroethane	107-06-2	3	0.005	0.057 U	0.064 U	0.080 U	0.055 U	0.068 U	0.061 U		
1,2-Dichloropropane	78-87-5	5	0.005	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
1,3-Dichlorobenzene	541-73-1	59000	12	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
1,4-Dichlorobenzene	106-46-7	13	1	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
1,4-Dioxane	123-91-1	NS	NS	7.1 U	8.0 U	10 U	6.8 U	8.5 U	7.7 U		
2-Hexanone	591-78-6	NS	NS	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
4-Methyl-2-pentanone	108-10-1	NS	NS	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
Acetone	67-64-1	NS	12	0.57 U	0.64 U	0.80 U	0.55 U	0.68 U	0.61 U		
Benzene	71-43-2	5	0.005	0.057 U	0.064 U	0.080 U	0.055 U	0.068 U	0.061 U		
Bromochloromethane	74-97-5	NS	NS	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
Bromodichloromethane	75-27-4	3	0.005	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
Bromoform	75-25-2	280	0.02	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
Bromomethane	74-83-9	59	0.03	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
Carbon disulfide	75-15-0	110000	4	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.0299 J		
Carbon tetrachloride	56-23-5	2	0.005	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
Chlorobenzene	108-90-7	7400	0.4	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
Chloroethane	75-00-3	1100	NS	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
Chloroform	67-66-3	2	0.2	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
Chloromethane	74-87-3	12	NS	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
cis-1,2-Dichloroethene	156-59-2	560	0.2	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
cis-1,3-Dichloropropene	10061-01-5	NS	NS	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
Cumene (Isopropyl benzene)	98-82-8	NS	NS	0.28 U	0.32 U	0.0657 J	0.0117 J	0.0420 J	0.0221 J		
Cyclohexane	110-82-7	NS	NS	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
Cyclohexane, Methyl-	108-87-2	NS	NS	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		
Dibromochloromethane	124-48-1	8	0.005	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U		

Table 2
Soil Analytical Results - VOCs
AOC-31 (Inverse Ponds)
Former Ingersoll Rand Facility
Phillipsburg, New Jersey

Station Name	CAS Number	NJDEP Direct Contact, Non-Residential SRS	NJDEP Default Impact to Groundwater Soil Screening Levels	TW1		TW2	TW3		TW4
Sample Date				9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013
Field Sample ID				TW1.7.5-8.0.091013	DUP-01.091013	TW2.15-15.5.091013	TW3.8-8.5.091013	TW3.10.25-10.75.091013	TW4.7.5-8.091013
Sample Depth				7.5 - 8	7.5 - 8	15 - 15.5	8 - 8.5	10.25 - 10.75	7.5 - 8
VOCs (mg/kg)									
Dichlorodifluoromethane	75-71-8	230000	25	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U
Ethylbenzene	100-41-4	110000	8	0.057 U	0.064 U	0.080 U	0.055 U	0.068 U	0.061 U
Methyl acetate	79-20-9	NS	14	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U
Methyl ethyl ketone (2-Butanone)	78-93-3	44000	0.6	0.57 U	0.64 U	0.80 U	0.55 U	0.68 U	0.61 U
Methyl tert butyl ether	1634-04-4	320	0.2	0.057 U	0.064 U	0.080 U	0.055 U	0.068 U	0.061 U
Methylene chloride	75-09-2	97	0.007	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U
Styrene	100-42-5	260	2	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U
Tetrachloroethene	127-18-4	5	0.005	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U
Toluene	108-88-3	91000	4	0.057 U	0.064 U	0.080 U	0.055 U	0.068 U	0.061 U
trans-1,2-Dichloroethene	156-60-5	720	0.4	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U
trans-1,3-Dichloropropene	10061-02-6	NS	NS	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U
Trichloroethene	79-01-6	20	0.007	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U
Trichlorofluoromethane	75-69-4	340000	22	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U
Vinyl Chloride	75-01-4	2	0.005	0.28 U	0.32 U	0.40 U	0.27 U	0.34 U	0.31 U
Xylene (m,p)	179601-23-1	NS	NS	0.057 U	0.064 U	0.080 U	0.055 U	0.068 U	0.061 U
Xylene (o)	95-47-6	NS	NS	0.057 U	0.064 U	0.080 U	0.055 U	0.068 U	0.061 U
Xylene (Total)	1330-20-7	170000	12	0.057 U	0.064 U	0.080 U	0.055 U	0.068 U	0.061 U
Total TIC, Volatile		NS	NS	32.03 J	56.9 J	237 J	63.1 J	162.9 J	83.9 J
Percent moisture	-----	-----	-----	16.0	16.0	25.9	12.3	20.3	12.8

Notes:

NS - No standard

J - Estimated value

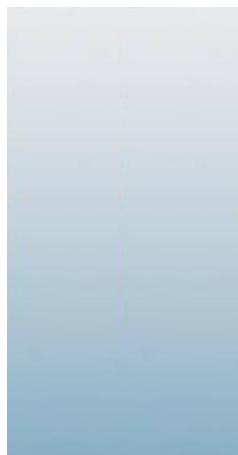
U - Non-detectable

Percent moisture is reported in table as the following: 100 - percent solids

Attachment A – Accutest Laboratory Analytical Report



10/02/13



Technical Report for

Geosyntec Consultants

IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ

JR0074A.05 PH0005

Accutest Job Number: JB47046

Sampling Date: 09/10/13

Report to:

Geosyntec Consultants

JLuchette@Geosyntec.com

ATTN: Joe Luchette

Total number of pages in report: 33



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

A handwritten signature in black ink that reads "Nancy T. Cole".

Nancy Cole
Laboratory Director

Client Service contact: Kristin Beebe 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV

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Test results relate only to samples analyzed.

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Sample Summary

Geosyntec Consultants

Job No: JB47046IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ
Project No: JR0074A.05 PH0005

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JB47046-1	09/10/13	10:45 PP	09/11/13	SO	Soil	TW1_7.5-8.0_091013
JB47046-2	09/10/13	00:00 PP	09/11/13	SO	Soil	DUP-01_091013
JB47046-3	09/10/13	12:10 PP	09/11/13	SO	Soil	TW2_15-15.5_091013
JB47046-4	09/10/13	13:25 PP	09/11/13	SO	Soil	TW3_8-8.5_091013
JB47046-4D	09/10/13	13:25 PP	09/11/13	SO	Soil Dup/MSD	TW3_8-8.5_091013MSD
JB47046-4S	09/10/13	13:25 PP	09/11/13	SO	Soil Matrix Spike	TW3_8-8.5_091013MS
JB47046-5	09/10/13	13:55 PP	09/11/13	SO	Soil	TW3_10.25-10.75_091013
JB47046-6	09/10/13	15:10 PP	09/11/13	SO	Soil	TW4_7.5-8_091013
JB47046-7	09/10/13	17:00 PP	09/11/13	AQ	Equipment Blank	EQB01_091013
JB47046-8	09/10/13	17:00 PP	09/11/13	AQ	Trip Blank Soil	TRIP BLANK

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Geosyntec Consultants

Job No JB47046

Site: IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ

Report Date 9/25/2013 4:16:05 PM

On 09/11/2013, 7 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 3 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB47046 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ

Batch ID: V3D3926

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB47484-1MS, JB47484-1MSD were used as the QC samples indicated.

Matrix: SO

Batch ID: VD8708

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB47068-1MS, JB47068-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- JB47046-2: Dilution required due to sample matrix.
- JB47046-3: Dilution required due to matrix interference.

Matrix: SO

Batch ID: VD8713

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB47559-2MS, JB47559-2MSD were used as the QC samples indicated.
- JB47046-6: Dilution required due to matrix interference.
- JB47046-5: Dilution required due to matrix interference.

Matrix: SO

Batch ID: VE9106

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB47046-4MS, JB47046-4MSD were used as the QC samples indicated.

Wet Chemistry By Method SM2540 G-97

Matrix: SO

Batch ID: GN91498

- The data for SM2540 G-97 meets quality control requirements.

Matrix: SO

Batch ID: GN91639

- The data for SM2540 G-97 meets quality control requirements.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

Summary of Hits

Job Number: JB47046
Account: Geosyntec Consultants
Project: IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ
Collected: 09/10/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

JB47046-1 TW1_7.5-8.0_091013

Total TIC, Volatile 32.03 J mg/kg

JB47046-2 DUP-01_091013

Total TIC, Volatile 56.9 J mg/kg

JB47046-3 TW2_15-15.5_091013

Isopropylbenzene ^a	0.0657 J	0.40	0.0059	mg/kg	SW846 8260B
Total TIC, Volatile	237 J			mg/kg	

JB47046-4 TW3_8-8.5_091013

Isopropylbenzene	0.0117 J	0.27	0.0041	mg/kg	SW846 8260B
Total TIC, Volatile	63.1 J			mg/kg	

JB47046-5 TW3_10.25-10.75_091013

Isopropylbenzene ^a	0.0420 J	0.34	0.0050	mg/kg	SW846 8260B
Total TIC, Volatile	162.9 J			mg/kg	

JB47046-6 TW4_7.5-8_091013

Carbon disulfide ^a	0.0299 J	0.31	0.0072	mg/kg	SW846 8260B
Isopropylbenzene ^a	0.0221 J	0.31	0.0046	mg/kg	SW846 8260B
Total TIC, Volatile	83.9 J			mg/kg	

JB47046-7 EQB01_091013

No hits reported in this sample.

JB47046-8 TRIP BLANK

No hits reported in this sample.

(a) Dilution required due to matrix interference.



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Sample Results

Report of Analysis

Report of Analysis

Page 1 of 3

Client Sample ID:	TW1_7.5-8.0_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-1	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	84.0
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D213261.D	1	09/14/13	CM	09/12/13 08:00	n/a	VD8708
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.3 g	5.0 ml	100 ul
Run #2			

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.57	0.096	mg/kg	
71-43-2	Benzene	ND	0.057	0.0068	mg/kg	
74-97-5	Bromochloromethane	ND	0.28	0.015	mg/kg	
75-27-4	Bromodichloromethane	ND	0.28	0.0060	mg/kg	
75-25-2	Bromoform	ND	0.28	0.0086	mg/kg	
74-83-9	Bromomethane	ND	0.28	0.015	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.57	0.14	mg/kg	
75-15-0	Carbon disulfide	ND	0.28	0.0066	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.28	0.0075	mg/kg	
108-90-7	Chlorobenzene	ND	0.28	0.0061	mg/kg	
75-00-3	Chloroethane	ND	0.28	0.013	mg/kg	
67-66-3	Chloroform	ND	0.28	0.0047	mg/kg	
74-87-3	Chloromethane	ND	0.28	0.011	mg/kg	
110-82-7	Cyclohexane	ND	0.28	0.0070	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.57	0.051	mg/kg	
124-48-1	Dibromochloromethane	ND	0.28	0.0093	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.057	0.0072	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.28	0.011	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.28	0.011	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.28	0.010	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.28	0.013	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.28	0.0078	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.057	0.0077	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.28	0.015	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.28	0.010	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.28	0.014	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.28	0.0087	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.28	0.0079	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.28	0.0088	mg/kg	
123-91-1	1,4-Dioxane	ND	7.1	3.4	mg/kg	
100-41-4	Ethylbenzene	ND	0.057	0.015	mg/kg	
76-13-1	Freon 113	ND	0.28	0.024	mg/kg	

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	TW1_7.5-8.0_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-1	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	84.0
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	0.28	0.035	mg/kg	
98-82-8	Isopropylbenzene	ND	0.28	0.0042	mg/kg	
79-20-9	Methyl Acetate	ND	0.28	0.15	mg/kg	
108-87-2	Methylcyclohexane	ND	0.28	0.0096	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.057	0.013	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.28	0.043	mg/kg	
75-09-2	Methylene chloride	ND	0.28	0.072	mg/kg	
100-42-5	Styrene	ND	0.28	0.0052	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.28	0.0075	mg/kg	
127-18-4	Tetrachloroethene	ND	0.28	0.0098	mg/kg	
108-88-3	Toluene	ND	0.057	0.0060	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.28	0.0093	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.28	0.0079	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.28	0.0060	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.28	0.0099	mg/kg	
79-01-6	Trichloroethene	ND	0.28	0.0099	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.28	0.017	mg/kg	
75-01-4	Vinyl chloride	ND	0.28	0.0082	mg/kg	
	m,p-Xylene	ND	0.057	0.0099	mg/kg	
95-47-6	o-Xylene	ND	0.057	0.0079	mg/kg	
1330-20-7	Xylene (total)	ND	0.057	0.0079	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		59-130%
17060-07-0	1,2-Dichloroethane-D4	102%		65-123%
2037-26-5	Toluene-D8	103%		80-124%
460-00-4	4-Bromofluorobenzene	91%		71-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Naphthalene decahydro-methyl	18.01	1.5	mg/kg	J
	Naphthalene decahydro-methyl	18.25	1.7	mg/kg	J
	unknown	18.90	1.2	mg/kg	J
	1H-Indene-dihydro-trimethyl	19.30	1	mg/kg	J
	Naphthalene tetrahydro-methyl	19.50	5.6	mg/kg	J
	1H-Indene-dihydro-dimethyl	19.62	2.3	mg/kg	J
	unknown	19.94	1.1	mg/kg	J
	C5 alkyl benzene	20.18	.93	mg/kg	J
	unknown	20.31	2.5	mg/kg	J

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	TW1_7.5-8.0_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-1	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	84.0
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
827-52-1	Naphthalene tetrahydro-dimethyl	20.47	1.6	mg/kg	J
	Naphthalene tetrahydro-dimethyl	20.70	6.5	mg/kg	J
	1H-Indene-dihydro-trimethyl	20.79	1.4	mg/kg	J
	Benzene, cyclohexyl-	20.84	1.4	mg/kg	JN
	unknown	21.03	2	mg/kg	J
	Naphthalene tetrahydro-dimethyl	21.13	1.3	mg/kg	J
	Total TIC, Volatile		32.03	mg/kg	J
Total Alkanes			0	mg/kg	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	DUP-01_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-2	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	84.0
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D213263.D	1	09/15/13	CM	09/12/13 08:00	n/a	VD8708
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.5 g	5.0 ml	100 ul
Run #2			

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.64	0.11	mg/kg	
71-43-2	Benzene	ND	0.064	0.0076	mg/kg	
74-97-5	Bromochloromethane	ND	0.32	0.017	mg/kg	
75-27-4	Bromodichloromethane	ND	0.32	0.0067	mg/kg	
75-25-2	Bromoform	ND	0.32	0.0096	mg/kg	
74-83-9	Bromomethane	ND	0.32	0.017	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.64	0.15	mg/kg	
75-15-0	Carbon disulfide	ND	0.32	0.0074	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.32	0.0085	mg/kg	
108-90-7	Chlorobenzene	ND	0.32	0.0069	mg/kg	
75-00-3	Chloroethane	ND	0.32	0.014	mg/kg	
67-66-3	Chloroform	ND	0.32	0.0053	mg/kg	
74-87-3	Chloromethane	ND	0.32	0.012	mg/kg	
110-82-7	Cyclohexane	ND	0.32	0.0079	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.64	0.057	mg/kg	
124-48-1	Dibromochloromethane	ND	0.32	0.010	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.064	0.0081	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.32	0.012	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.32	0.012	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.32	0.011	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.32	0.015	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.32	0.0087	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.064	0.0086	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.32	0.016	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.32	0.012	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.32	0.015	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.32	0.0098	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.32	0.0088	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.32	0.0099	mg/kg	
123-91-1	1,4-Dioxane	ND	8.0	3.8	mg/kg	
100-41-4	Ethylbenzene	ND	0.064	0.017	mg/kg	
76-13-1	Freon 113	ND	0.32	0.027	mg/kg	

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	DUP-01_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-2	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	84.0
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	0.32	0.040	mg/kg	
98-82-8	Isopropylbenzene	ND	0.32	0.0047	mg/kg	
79-20-9	Methyl Acetate	ND	0.32	0.17	mg/kg	
108-87-2	Methylcyclohexane	ND	0.32	0.011	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.064	0.015	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.32	0.048	mg/kg	
75-09-2	Methylene chloride	ND	0.32	0.081	mg/kg	
100-42-5	Styrene	ND	0.32	0.0058	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.32	0.0084	mg/kg	
127-18-4	Tetrachloroethene	ND	0.32	0.011	mg/kg	
108-88-3	Toluene	ND	0.064	0.0067	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.32	0.010	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.32	0.0088	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.32	0.0067	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.32	0.011	mg/kg	
79-01-6	Trichloroethene	ND	0.32	0.011	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.32	0.019	mg/kg	
75-01-4	Vinyl chloride	ND	0.32	0.0092	mg/kg	
	m,p-Xylene	ND	0.064	0.011	mg/kg	
95-47-6	o-Xylene	ND	0.064	0.0088	mg/kg	
1330-20-7	Xylene (total)	ND	0.064	0.0088	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		59-130%
17060-07-0	1,2-Dichloroethane-D4	101%		65-123%
2037-26-5	Toluene-D8	102%		80-124%
460-00-4	4-Bromofluorobenzene	90%		71-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Naphthalene decahydro-methyl	18.01	2.5	mg/kg	J
	Naphthalene decahydro-methyl	18.25	2.9	mg/kg	J
	C6 alkyl benzene	18.72	1.9	mg/kg	J
	1H-Indene-dihydro-dimethyl	18.92	2.5	mg/kg	J
	Naphthalene tetrahydro-methyl	19.50	9	mg/kg	J
	1H-Indene-dihydro-dimethyl	19.62	5.5	mg/kg	J
	unknown	19.80	2.7	mg/kg	J
	unknown	20.31	4.4	mg/kg	J
	1H-Indene-dihydro-trimethyl	20.47	3.5	mg/kg	J

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	DUP-01_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-2	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	84.0
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Naphthalene tetrahydro-dimethyl	20.70	9.9	mg/kg	J
	Naphthalene tetrahydro-dimethyl	20.80	2.5	mg/kg	J
	Naphthalene tetrahydro-ethyl	20.84	2.2	mg/kg	J
	unknown	21.03	2.9	mg/kg	J
	unknown	21.08	2.6	mg/kg	J
	Naphthalene tetrahydro-dimethyl	21.13	1.9	mg/kg	J
	Total TIC, Volatile		56.9	mg/kg	J
	Total Alkanes		0	mg/kg	

(a) Dilution required due to sample matrix.

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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4.3
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Client Sample ID:	TW2_15-15.5_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-3	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	74.1
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D213264.D	1	09/15/13	CM	09/12/13 08:00	n/a	VD8708
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.4 g	5.0 ml	100 ul
Run #2			

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.80	0.14	mg/kg	
71-43-2	Benzene	ND	0.080	0.0095	mg/kg	
74-97-5	Bromochloromethane	ND	0.40	0.021	mg/kg	
75-27-4	Bromodichloromethane	ND	0.40	0.0084	mg/kg	
75-25-2	Bromoform	ND	0.40	0.012	mg/kg	
74-83-9	Bromomethane	ND	0.40	0.022	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.80	0.19	mg/kg	
75-15-0	Carbon disulfide	ND	0.40	0.0094	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.40	0.011	mg/kg	
108-90-7	Chlorobenzene	ND	0.40	0.0086	mg/kg	
75-00-3	Chloroethane	ND	0.40	0.018	mg/kg	
67-66-3	Chloroform	ND	0.40	0.0066	mg/kg	
74-87-3	Chloromethane	ND	0.40	0.015	mg/kg	
110-82-7	Cyclohexane	ND	0.40	0.0099	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.80	0.071	mg/kg	
124-48-1	Dibromochloromethane	ND	0.40	0.013	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.080	0.010	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.40	0.015	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.40	0.015	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.40	0.014	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.40	0.018	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.40	0.011	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.080	0.011	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.40	0.021	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.40	0.015	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.40	0.019	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.40	0.012	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.40	0.011	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.40	0.012	mg/kg	
123-91-1	1,4-Dioxane	ND	10	4.8	mg/kg	
100-41-4	Ethylbenzene	ND	0.080	0.021	mg/kg	
76-13-1	Freon 113	ND	0.40	0.034	mg/kg	

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	TW2_15-15.5_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-3	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	74.1
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	0.40	0.050	mg/kg	
98-82-8	Isopropylbenzene	0.0657	0.40	0.0059	mg/kg	J
79-20-9	Methyl Acetate	ND	0.40	0.21	mg/kg	
108-87-2	Methylcyclohexane	ND	0.40	0.014	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.080	0.019	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.40	0.060	mg/kg	
75-09-2	Methylene chloride	ND	0.40	0.10	mg/kg	
100-42-5	Styrene	ND	0.40	0.0073	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.40	0.011	mg/kg	
127-18-4	Tetrachloroethene	ND	0.40	0.014	mg/kg	
108-88-3	Toluene	ND	0.080	0.0084	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.40	0.013	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.40	0.011	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.40	0.0085	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.40	0.014	mg/kg	
79-01-6	Trichloroethene	ND	0.40	0.014	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.40	0.024	mg/kg	
75-01-4	Vinyl chloride	ND	0.40	0.012	mg/kg	
	m,p-Xylene	ND	0.080	0.014	mg/kg	
95-47-6	o-Xylene	ND	0.080	0.011	mg/kg	
1330-20-7	Xylene (total)	ND	0.080	0.011	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		59-130%
17060-07-0	1,2-Dichloroethane-D4	102%		65-123%
2037-26-5	Toluene-D8	104%		80-124%
460-00-4	4-Bromofluorobenzene	89%		71-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	C4 alkyl benzene	18.04	19	mg/kg	J
	C4 alkyl benzene	18.60	18	mg/kg	J
	dihydro-methylindene + C5 alkylbenzene	18.65	22	mg/kg	J
	dihydro-dimethylindene + C5 alkylbenzene	18.98	19	mg/kg	J
	1H-Indene-dihydro-dimethyl	19.06	11	mg/kg	J
	C5 alkyl benzene	19.13	11	mg/kg	J
	C5 alkyl benzene	19.35	15	mg/kg	J
	Naphthalene tetrahydro-methyl	19.51	20	mg/kg	J
	1H-Indene-dihydro-dimethyl	19.80	16	mg/kg	J

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	TW2_15-15.5_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-3	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	74.1
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Naphthalene tetrahydro-methyl	20.08	20	mg/kg	J
	1H-Indene-dihydro-dimethyl	20.31	11	mg/kg	J
	Naphthalene tetrahydro-methyl	20.51	12	mg/kg	J
	Naphthalene tetrahydro-dimethyl	20.70	14	mg/kg	J
	Naphthalene methyl	20.81	13	mg/kg	J
	Naphthalene methyl	21.08	16	mg/kg	J
	Total TIC, Volatile		237	mg/kg	J
	Total Alkanes		0	mg/kg	

(a) Dilution required due to matrix interference.

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	TW3_8-8.5_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-4	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	87.7
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E207399.D	1	09/18/13	DP	09/12/13 08:00	n/a	VE9106
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.0 g	5.0 ml	100 ul
Run #2			

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.55	0.092	mg/kg	
71-43-2	Benzene	ND	0.055	0.0065	mg/kg	
74-97-5	Bromochloromethane	ND	0.27	0.014	mg/kg	
75-27-4	Bromodichloromethane	ND	0.27	0.0057	mg/kg	
75-25-2	Bromoform	ND	0.27	0.0082	mg/kg	
74-83-9	Bromomethane	ND	0.27	0.015	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.55	0.13	mg/kg	
75-15-0	Carbon disulfide	ND	0.27	0.0064	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.27	0.0073	mg/kg	
108-90-7	Chlorobenzene	ND	0.27	0.0059	mg/kg	
75-00-3	Chloroethane	ND	0.27	0.012	mg/kg	
67-66-3	Chloroform	ND	0.27	0.0045	mg/kg	
74-87-3	Chloromethane	ND	0.27	0.010	mg/kg	
110-82-7	Cyclohexane	ND	0.27	0.0068	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.55	0.049	mg/kg	
124-48-1	Dibromochloromethane	ND	0.27	0.0089	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.055	0.0069	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.27	0.010	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.27	0.010	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.27	0.0096	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.27	0.012	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.27	0.0075	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.055	0.0074	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.27	0.014	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.27	0.010	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.27	0.013	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.27	0.0084	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.27	0.0076	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.27	0.0085	mg/kg	
123-91-1	1,4-Dioxane	ND	6.8	3.2	mg/kg	
100-41-4	Ethylbenzene	ND	0.055	0.014	mg/kg	
76-13-1	Freon 113	ND	0.27	0.023	mg/kg	

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	TW3_8-8.5_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-4	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	87.7
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	0.27	0.034	mg/kg	
98-82-8	Isopropylbenzene	0.0117	0.27	0.0041	mg/kg	J
79-20-9	Methyl Acetate	ND	0.27	0.14	mg/kg	
108-87-2	Methylcyclohexane	ND	0.27	0.0092	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.055	0.013	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.27	0.041	mg/kg	
75-09-2	Methylene chloride	ND	0.27	0.069	mg/kg	
100-42-5	Styrene	ND	0.27	0.0050	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.27	0.0072	mg/kg	
127-18-4	Tetrachloroethene	ND	0.27	0.0094	mg/kg	
108-88-3	Toluene	ND	0.055	0.0057	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.27	0.0089	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.27	0.0076	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.27	0.0058	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.27	0.0095	mg/kg	
79-01-6	Trichloroethene	ND	0.27	0.0095	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.27	0.016	mg/kg	
75-01-4	Vinyl chloride	ND	0.27	0.0079	mg/kg	
	m,p-Xylene	ND	0.055	0.0095	mg/kg	
95-47-6	o-Xylene	ND	0.055	0.0076	mg/kg	
1330-20-7	Xylene (total)	ND	0.055	0.0076	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		59-130%
17060-07-0	1,2-Dichloroethane-D4	89%		65-123%
2037-26-5	Toluene-D8	95%		80-124%
460-00-4	4-Bromofluorobenzene	89%		71-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	C4 alkyl benzene	17.81	2.6	mg/kg	J
	Naphthalene decahydro-methyl	18.04	3.2	mg/kg	J
	C5 alkyl benzene	18.42	3.3	mg/kg	J
	C5 alkyl benzene	18.73	3.2	mg/kg	J
	1H-Indene-dihydro-dimethyl	18.94	3.7	mg/kg	J
	Naphthalene tetrahydro-methyl	19.27	3.8	mg/kg	J
	1H-Indene-dihydro-dimethyl	19.56	5.3	mg/kg	J
	C6 alkyl benzene	19.67	3.1	mg/kg	J
	Naphthalene tetrahydro-methyl	19.83	2.5	mg/kg	J

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Page 3 of 3

Client Sample ID:	TW3_8-8.5_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-4	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	87.7
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Naphthalene tetrahydro-dimethyl	20.05	2.5	mg/kg	J
	Naphthalene tetrahydro-dimethyl	20.42	6.9	mg/kg	J
	Naphthalene methyl	20.54	9.2	mg/kg	J
	Naphthalene methyl	20.81	7	mg/kg	J
	Naphthalene dimethyl	21.96	4.1	mg/kg	J
	Naphthalene dimethyl	22.21	2.7	mg/kg	J
	Total TIC, Volatile		63.1	mg/kg	J
	Total Alkanes		0	mg/kg	

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	TW3_10.25-10.75_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-5	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	79.7
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D213393.D	1	09/19/13	CM	09/12/13 08:00	n/a	VD8713
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.7 g	5.0 ml	100 ul
Run #2			

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.68	0.11	mg/kg	
71-43-2	Benzene	ND	0.068	0.0081	mg/kg	
74-97-5	Bromochloromethane	ND	0.34	0.018	mg/kg	
75-27-4	Bromodichloromethane	ND	0.34	0.0071	mg/kg	
75-25-2	Bromoform	ND	0.34	0.010	mg/kg	
74-83-9	Bromomethane	ND	0.34	0.019	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.68	0.16	mg/kg	
75-15-0	Carbon disulfide	ND	0.34	0.0079	mg/kg	
56-23-5	Carbon tetrachloride	ND	0.34	0.0090	mg/kg	
108-90-7	Chlorobenzene	ND	0.34	0.0073	mg/kg	
75-00-3	Chloroethane	ND	0.34	0.015	mg/kg	
67-66-3	Chloroform	ND	0.34	0.0056	mg/kg	
74-87-3	Chloromethane	ND	0.34	0.013	mg/kg	
110-82-7	Cyclohexane	ND	0.34	0.0084	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.68	0.060	mg/kg	
124-48-1	Dibromochloromethane	ND	0.34	0.011	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.068	0.0086	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.34	0.013	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.34	0.013	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.34	0.012	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.34	0.015	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.34	0.0093	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.068	0.0091	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.34	0.017	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.34	0.012	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.34	0.016	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.34	0.010	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.34	0.0094	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.34	0.011	mg/kg	
123-91-1	1,4-Dioxane	ND	8.5	4.0	mg/kg	
100-41-4	Ethylbenzene	ND	0.068	0.018	mg/kg	
76-13-1	Freon 113	ND	0.34	0.029	mg/kg	

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	TW3_10.25-10.75_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-5	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	79.7
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	0.34	0.042	mg/kg	
98-82-8	Isopropylbenzene	0.0420	0.34	0.0050	mg/kg	J
79-20-9	Methyl Acetate	ND	0.34	0.18	mg/kg	
108-87-2	Methylcyclohexane	ND	0.34	0.011	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.068	0.016	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.34	0.051	mg/kg	
75-09-2	Methylene chloride	ND	0.34	0.086	mg/kg	
100-42-5	Styrene	ND	0.34	0.0062	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.34	0.0089	mg/kg	
127-18-4	Tetrachloroethene	ND	0.34	0.012	mg/kg	
108-88-3	Toluene	ND	0.068	0.0071	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.34	0.011	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.34	0.0094	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.34	0.0072	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.34	0.012	mg/kg	
79-01-6	Trichloroethene	ND	0.34	0.012	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.34	0.020	mg/kg	
75-01-4	Vinyl chloride	ND	0.34	0.0098	mg/kg	
	m,p-Xylene	ND	0.068	0.012	mg/kg	
95-47-6	o-Xylene	ND	0.068	0.0094	mg/kg	
1330-20-7	Xylene (total)	ND	0.068	0.0094	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		59-130%
17060-07-0	1,2-Dichloroethane-D4	102%		65-123%
2037-26-5	Toluene-D8	105%		80-124%
460-00-4	4-Bromofluorobenzene	90%		71-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	C4 alkyl benzene	17.60	6.6	mg/kg	J
	C4 alkyl benzene	18.04	13	mg/kg	J
	C5 alkyl benzene	18.25	6.8	mg/kg	J
	C4 alkyl benzene	18.60	11	mg/kg	J
	dihydro-methylindene + C5 alkylbenzene	18.66	11	mg/kg	J
	C5 alkyl benzene	18.98	11	mg/kg	J
	1H-Indene-dihydro-dimethyl	19.18	6.6	mg/kg	J
	Naphthalene tetrahydro-methyl	19.50	17	mg/kg	J
	1H-Indene-dihydro-dimethyl	19.80	10	mg/kg	J

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	TW3_10.25-10.75_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-5	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	79.7
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
5676-32-4	Benzene, (1-methylenebutyl)-	20.08	13	mg/kg	JN
	Naphthalene tetrahydro-methyl	20.31	7.5	mg/kg	J
	Naphthalene tetrahydro-methyl	20.51	7.7	mg/kg	J
	Naphthalene tetrahydro-dimethyl	20.70	9.7	mg/kg	J
	Naphthalene methyl	20.81	22	mg/kg	J
	Naphthalene methyl	21.08	10	mg/kg	J
	Total TIC, Volatile		162.9	mg/kg	J
	Total Alkanes		0	mg/kg	

(a) Dilution required due to matrix interference.

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	TW4_7.5-8_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-6	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	87.2
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D213394.D	1	09/19/13	CM	09/12/13 08:00	n/a	VD8713
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.3 g	5.0 ml	100 ul
Run #2			

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	0.61	0.10	mg/kg	
71-43-2	Benzene	ND	0.061	0.0073	mg/kg	
74-97-5	Bromochloromethane	ND	0.31	0.016	mg/kg	
75-27-4	Bromodichloromethane	ND	0.31	0.0065	mg/kg	
75-25-2	Bromoform	ND	0.31	0.0093	mg/kg	
74-83-9	Bromomethane	ND	0.31	0.017	mg/kg	
78-93-3	2-Butanone (MEK)	ND	0.61	0.15	mg/kg	
75-15-0	Carbon disulfide	0.0299	0.31	0.0072	mg/kg	J
56-23-5	Carbon tetrachloride	ND	0.31	0.0082	mg/kg	
108-90-7	Chlorobenzene	ND	0.31	0.0066	mg/kg	
75-00-3	Chloroethane	ND	0.31	0.014	mg/kg	
67-66-3	Chloroform	ND	0.31	0.0051	mg/kg	
74-87-3	Chloromethane	ND	0.31	0.011	mg/kg	
110-82-7	Cyclohexane	ND	0.31	0.0076	mg/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.61	0.055	mg/kg	
124-48-1	Dibromochloromethane	ND	0.31	0.010	mg/kg	
106-93-4	1,2-Dibromoethane	ND	0.061	0.0078	mg/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.31	0.012	mg/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.31	0.011	mg/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.31	0.011	mg/kg	
75-71-8	Dichlorodifluoromethane	ND	0.31	0.014	mg/kg	
75-34-3	1,1-Dichloroethane	ND	0.31	0.0084	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.061	0.0083	mg/kg	
75-35-4	1,1-Dichloroethene	ND	0.31	0.016	mg/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.31	0.011	mg/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.31	0.015	mg/kg	
78-87-5	1,2-Dichloropropane	ND	0.31	0.0095	mg/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	0.31	0.0085	mg/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	0.31	0.0095	mg/kg	
123-91-1	1,4-Dioxane	ND	7.7	3.7	mg/kg	
100-41-4	Ethylbenzene	ND	0.061	0.016	mg/kg	
76-13-1	Freon 113	ND	0.31	0.026	mg/kg	

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	TW4_7.5-8_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-6	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	87.2
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	0.31	0.038	mg/kg	
98-82-8	Isopropylbenzene	0.0221	0.31	0.0046	mg/kg	J
79-20-9	Methyl Acetate	ND	0.31	0.16	mg/kg	
108-87-2	Methylcyclohexane	ND	0.31	0.010	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.061	0.014	mg/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	0.31	0.046	mg/kg	
75-09-2	Methylene chloride	ND	0.31	0.078	mg/kg	
100-42-5	Styrene	ND	0.31	0.0056	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.31	0.0081	mg/kg	
127-18-4	Tetrachloroethene	ND	0.31	0.011	mg/kg	
108-88-3	Toluene	ND	0.061	0.0065	mg/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	0.31	0.010	mg/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	0.31	0.0085	mg/kg	
71-55-6	1,1,1-Trichloroethane	ND	0.31	0.0065	mg/kg	
79-00-5	1,1,2-Trichloroethane	ND	0.31	0.011	mg/kg	
79-01-6	Trichloroethene	ND	0.31	0.011	mg/kg	
75-69-4	Trichlorofluoromethane	ND	0.31	0.018	mg/kg	
75-01-4	Vinyl chloride	ND	0.31	0.0088	mg/kg	
	m,p-Xylene	ND	0.061	0.011	mg/kg	
95-47-6	o-Xylene	ND	0.061	0.0085	mg/kg	
1330-20-7	Xylene (total)	ND	0.061	0.0085	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		59-130%
17060-07-0	1,2-Dichloroethane-D4	103%		65-123%
2037-26-5	Toluene-D8	104%		80-124%
460-00-4	4-Bromofluorobenzene	89%		71-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	C4 alkyl benzene	18.04	3.6	mg/kg	J
	1H-indene-dihydro-dimethyl	18.92	4.2	mg/kg	J
	C5 alkyl benzene	18.97	6.7	mg/kg	J
	1H-Indene-dihydro-dimethyl	19.06	4.1	mg/kg	J
	C5 alkyl benzene	19.13	4.2	mg/kg	J
	1H-Indene-dihydro-dimethyl	19.18	4.5	mg/kg	J
	unknown	19.32	3.6	mg/kg	J
	Naphthalene tetrahydro-methyl	19.50	11	mg/kg	J
	1H-Indene-dihydro-dimethyl	19.80	6.5	mg/kg	J

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Page 3 of 3

Client Sample ID:	TW4_7.5-8_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-6	Date Received:	09/11/13
Matrix:	SO - Soil	Percent Solids:	87.2
Method:	SW846 8260B SW846 5035		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	unknown	19.94	3.3	mg/kg	J
	unknown	20.31	5.1	mg/kg	J
	Naphthalene tetrahydro-methyl	20.51	3.7	mg/kg	J
	Naphthalene tetrahydro-dimethyl	20.69	9.8	mg/kg	J
	Naphthalene methyl	20.80	9.5	mg/kg	J
	Naphthalene methyl	21.08	4.1	mg/kg	J
	Total TIC, Volatile		83.9	mg/kg	J
	Total Alkanes		0	mg/kg	

(a) Dilution required due to matrix interference.

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 2

Client Sample ID:	EQB01_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-7	Date Received:	09/11/13
Matrix:	AQ - Equipment Blank	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D91126.D	1	09/21/13	KC	n/a	n/a	V3D3926
Run #2							

Purge Volume	
Run #1	5.0 ml
Run #2	

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.3	ug/l	
71-43-2	Benzene	ND	1.0	0.24	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.30	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.21	ug/l	
75-25-2	Bromoform	ND	4.0	0.21	ug/l	
74-83-9	Bromomethane	ND	2.0	0.22	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.4	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.19	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.22	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.23	ug/l	
75-00-3	Chloroethane	ND	1.0	0.26	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
74-87-3	Chloromethane	ND	1.0	0.21	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.35	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	0.54	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.20	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.22	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.22	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.30	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.27	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.11	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.19	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.19	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.21	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.48	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.19	ug/l	
123-91-1	1,4-Dioxane	ND	130	75	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
76-13-1	Freon 113	ND	5.0	0.53	ug/l	

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Page 2 of 2

Client Sample ID:	EQB01_091013	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-7	Date Received:	09/11/13
Matrix:	AQ - Equipment Blank	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.0	1.1	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
79-20-9	Methyl Acetate	ND	5.0	1.2	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	0.83	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.70	ug/l	
100-42-5	Styrene	ND	5.0	0.21	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.21	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.28	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.28	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.24	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.29	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.22	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.21	ug/l	
	m,p-Xylene	ND	1.0	0.42	ug/l	
95-47-6	o-Xylene	ND	1.0	0.24	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	85%		79-117%
17060-07-0	1,2-Dichloroethane-D4	82%		72-123%
2037-26-5	Toluene-D8	92%		82-118%
460-00-4	4-Bromofluorobenzene	82%		75-118%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	
	Total Alkanes		0	ug/l	

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 2

Client Sample ID: TRIP BLANK
Lab Sample ID: JB47046-8
Matrix: AQ - Trip Blank Soil
Method: SW846 8260B
Project: IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D91127.D	1	09/21/13	KC	n/a	n/a	V3D3926
Run #2							

Purge Volume
Run #1 5.0 ml
Run #2

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.3	ug/l	
71-43-2	Benzene	ND	1.0	0.24	ug/l	
74-97-5	Bromochloromethane	ND	5.0	0.30	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.21	ug/l	
75-25-2	Bromoform	ND	4.0	0.21	ug/l	
74-83-9	Bromomethane	ND	2.0	0.22	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.4	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.19	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.22	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.23	ug/l	
75-00-3	Chloroethane	ND	1.0	0.26	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
74-87-3	Chloromethane	ND	1.0	0.21	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.35	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	0.54	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	2.0	0.20	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.22	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.22	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.30	ug/l	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.27	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.11	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.26	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.19	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.19	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.21	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.48	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.21	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.19	ug/l	
123-91-1	1,4-Dioxane	ND	130	75	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.23	ug/l	
76-13-1	Freon 113	ND	5.0	0.53	ug/l	

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Page 2 of 2

Client Sample ID:	TRIP BLANK	Date Sampled:	09/10/13
Lab Sample ID:	JB47046-8	Date Received:	09/11/13
Matrix:	AQ - Trip Blank Soil	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	IR-Phillipsburg, 942 Memorial Parkway, Phillipsburg, NJ		

VOA TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	5.0	1.1	ug/l	
98-82-8	Isopropylbenzene	ND	2.0	0.45	ug/l	
79-20-9	Methyl Acetate	ND	5.0	1.2	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.26	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.16	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	0.83	ug/l	
75-09-2	Methylene chloride	ND	2.0	0.70	ug/l	
100-42-5	Styrene	ND	5.0	0.21	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.21	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.28	ug/l	
108-88-3	Toluene	ND	1.0	0.23	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.28	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.24	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.29	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.22	ug/l	
75-69-4	Trichlorofluoromethane	ND	5.0	0.27	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.21	ug/l	
	m,p-Xylene	ND	1.0	0.42	ug/l	
95-47-6	o-Xylene	ND	1.0	0.24	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.24	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	86%		79-117%
17060-07-0	1,2-Dichloroethane-D4	86%		72-123%
2037-26-5	Toluene-D8	89%		82-118%
460-00-4	4-Bromofluorobenzene	81%		75-118%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	
	Total Alkanes		0	ug/l	

ND = Not detected MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound



Misc. Forms

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Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



CHAIN OF CUSTODY

PAGE 1 OF 1

PW.

*WTB
WEB
JLL*

2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)										Matrix Codes	
Company Name <i>Geosyntec Consultants</i>	Project Name: <i>JR Phillipsburg</i>	Street <i>7 Grapher Drive Suite 106</i>	City <i>Phillipsburg</i>	FED-EX Tracking #										Bottle Order Control #	
Street Address <i>942 Memorial Parkway</i>	City <i>Phillipsburg</i>	State <i>NJ</i>	State <i>NJ</i>	Accutest Quote #										Accutest Job #	
City <i>Ewing NJ</i>	State <i>08628</i>	City <i>Phillipsburg</i>	State <i>NJ</i>	<i>JB47046</i>											
Project Contact <i>Paul Probst</i>	E-mail <i>PH0005</i>	Project # <i>PH0005</i>	Street Address												
Phone # <i>609-895-1400</i>	Fax #	Client Purchase Order #	City	State	Zip										
Sampler(s) Name(s) <i>Paul Probst</i>	Phone #	Project Manager <i>Mike Lambert</i>	Attention:												
Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection			Matrix	Number of preserved Bottles								
			Date	Time	Sampled by		# of bottles	H2O	HNO3	HCO3	HCH3CO	NaCl	DINH3	METH	ENONE
1	TW1-7.9-8.0-091013	9	9/10/13	1045	PP	SO	4	X				X		X	X
2	DUP-01-091013			—		SO	3					X		X	
3	TW2-15-15.5-091013			1210		SO	4		X		X	X	X	X	
4	TW3-8-8.5-091013			1325		SO	4		X		X	X	X	X	
5	TW3-8-8.5-091013 MS			1325		SO	3				X				
6	TW3-8-8.5-091013 MS			1325		SO	3				X				
7	TW3-10.25-10.75-091013			1355		SO	4		X		X	X	X	X	
8	TW4-7.5-8-091013			1510		SO	4		X		X	X	X	X	
9	EQB01-091013			1700		Ag	2	X							
10	Trip Blank		9/10/13	0600	—	Ag	2	X							
Turnaround Time (Business days)			Data Deliverable Information										Comments / Special Instructions		
<input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY <input type="checkbox"/> other Emergency & Rush T/A data available VIA Lablink			Approved By (Accutest PM): Date: <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input checked="" type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data										<i>③ Enclosed lead 9/11/13 (all)</i>		
Sample Custody must be documented below each time samples change possession, including courier delivery.															
1	Received By: <i>DKL</i>	Date Time: <i>9/11/13 1700</i>	Relinquished By: <i>DKL</i>	Date Time: <i>9/11/13 1700</i>	Received By: <i>DKL</i>	Date Time: <i>9/11/13 1700</i>	Relinquished By: <i>DKL</i>	Date Time: <i>9/11/13 1700</i>	Received By: <i>Mikhail Beaton</i>	On Ice: <input checked="" type="checkbox"/>	Cooler Temp: <i>3.0</i>				
3	Received By: <i>DKL</i>	Date Time: <i>9/11/13 1700</i>	Relinquished By: <i>DKL</i>	Date Time: <i>9/11/13 1700</i>	Received By: <i>DKL</i>	Date Time: <i>9/11/13 1700</i>	Relinquished By: <i>DKL</i>	Date Time: <i>9/11/13 1700</i>	Received By: <i>Mikhail Beaton</i>	On Ice: <input checked="" type="checkbox"/>	Cooler Temp: <i>3.0</i>				
5	Received By: <i>DKL</i>	Date Time: <i>9/11/13 1700</i>	Received By: <i>DKL</i>	Date Time: <i>9/11/13 1700</i>	Received By: <i>DKL</i>	Date Time: <i>9/11/13 1700</i>	Received By: <i>DKL</i>	Date Time: <i>9/11/13 1700</i>	Received By: <i>Mikhail Beaton</i>	On Ice: <input checked="" type="checkbox"/>	Cooler Temp: <i>3.0</i>				

5.1
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JB47046: Chain of Custody

Page 1 of 3



Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB47046

Client: GEOSYNTEC CONSULTANTS

Project: IR PHILLIPSBURG

Date / Time Received: 9/11/2013

Delivery Method: Accutest Courier

Airbill #'s:

Cooler Temps (Initial/Adjusted): #1: (3/3): 0

Cooler SecurityY or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler TemperatureY or N

1. Temp criteria achieved:
2. Cooler temp verification: _____
3. Cooler media: _____
4. No. Coolers: _____

Quality Control PreservatioY N N/A

1. Trip Blank present / cooler:
2. Trip Blank listed on COC:
3. Samples preserved properly:
4. VOCs headspace free:

Sample Integrity - DocumentationY or N

1. Sample labels present on bottles:
2. Container labeling complete:
3. Sample container label / COC agree:

Sample Integrity - ConditionY or N

1. Sample recvd within HT:
2. All containers accounted for:
3. Condition of sample: Intact

Sample Integrity - InstructionsY N N/A

1. Analysis requested is clear:
2. Bottles received for unspecified tests:
3. Sufficient volume recvd for analysis:
4. Compositing instructions clear:
5. Filtering instructions clear:

Comments -2. NO % SOLID VOLUME RECEIVED

Accutest Laboratories
V:732.329.02002235 US Highway 130
F: 732.329.3499Dayton, New Jersey
www.accutest.com**JB47046: Chain of Custody****Page 2 of 3**



Sample Receipt Summary - Problem Resolution

Accutest Job Number: JB47046

CSR: Kristin Beebe

Response Date: 9/12/2013

Response: Please log in SUBSOL for -2 and use %solids data obtained from sample -1.

5.1

5

Accutest Laboratories
V:732.329.0200

2235 US Highway 130
F: 732.329.3499

Dayton, New Jersey
www.accutest.com

JB47046: Chain of Custody
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Attachment B – Photograph Log



Photograph 1. Suspected foundry sands within the 0 to 1 ft. depth interval at the TW-2 boring location.



Photograph 2. One-inch diameter temporary groundwater monitoring point.